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Frequently Asked Questions

Closure of the Unlined Landfill Located on Old Fall River Road, Dartmouth, MA

This document has been prepared to address questions raised about the Old Fall River Road Landfill during public information sessions. Please note that similar questions about other unlined inactive landfills may be answered differently depending on site conditions, proposed closure plans, and other factors.

Q. Who has the authority to make decisions on the closure of unlined landfills?

A. MassDEP has authority over required activities related to the closure and capping of landfills and waste disposal areas. A Town Conservation Commission has authority over associated activities in wetland resource areas. The Town Board of Health has jurisdiction jointly with MassDEP over noise, odor, or other nuisance conditions that may occur during landfill activities and closure operations.

Q. What is MassDEP's authority to require an owner to perform assessment and closure of a landfill?

A. MassDEP's regulatory authority governing solid waste and landfill closures can be found under the solid waste statute, Massachusetts General Law (M.G.L.), chapter 111, section 150A and the solid waste regulations, 310 CMR 19.000. The purpose of the solid waste regulations is to protect public health, safety and the environment by comprehensively regulating the storage, transfer, processing, treatment, disposal, use and reuse of solid waste, as well as closure of waste disposal facilities in Massachusetts.

Q. Who makes the decision on whether or not a proposed project to cap a landfill goes forward?

A. MassDEP after consideration of input from the municipality and local citizens makes the decision on the adequacy of a proposed closure plan and the terms and conditions under which a landfill will be brought into compliance. This is done through a negotiated agreement known as an administrative consent order and/or a closure permit issued under MassDEP's solid waste regulations.

Q. Can a town impose restrictions on a proposed project to cap and close a landfill, such as limiting the types of material that can be brought to the landfill?

A. As a general rule, a town may not impose conditions that might interfere with the terms and conditions MassDEP establishes for the landfill to be brought into compliance with MassDEP regulations. A town will, however, have the opportunity to provide comments on various submittals and the permits that are required as part of a landfill closure. MassDEP requires the project proponent to engage the community early in the process and must address issues raised.

Q. What are the risks associated with unlined landfills that are not properly capped and closed?

A. An unlined and uncapped landfill presents multiple risks to public health and the environment:

- Stormwater percolating through a waste pile leaches out contaminants into groundwater which can then contaminate drinking water supplies and water bodies.
- Stormwater running off a site through exposed waste can contaminate surface waters and sediments along the banks and bottoms of waterways and wetland resource areas.
- People who walk on or dig into the waste pile will be directly exposed to contamination and can release the contamination into the environment.
- Landfills often generate gas for decades after they have stopped accepting wastes. When the gas is not properly evaluated and controlled through closure, it may cause problems for public safety; it is likely that gas vapors may collect and present an explosion hazard, or public health risks due to toxic emissions like hydrogen sulfide and nuisance odors that can be found at a distance away from the landfill.
- The nature of the threat posed by an unlined and uncapped landfill may vary over time, even increasing as material in the landfill breaks down and/or conditions around the landfill, such as land use, groundwater use, water flow and climate change.

Q. How does a cap minimize the risk from an unlined landfill?

A. An unlined landfill that is uncapped allows waste contaminants to be released into the groundwater and surface water degrading water quality and wetland resources and allows uncontrolled landfill gas release. There is the potential that private drinking water sources could be impacted by undetected landfill contaminants in the immediate area.

A landfill cap includes an impermeable barrier and other features that eliminate almost all of the percolation of storm water into the landfill mass. This significantly reduces the discharge of landfill leachate (contaminated water) into the groundwater and into abutting surface waters and wetlands. The cap also prevents stormwater runoff contaminated by the waste from entering surface water and wetland resource areas. Also, a properly designed and constructed cap will control landfill gas by preventing its migration offsite and adding controls that will eliminate odors. A properly closed landfill includes 30-year maintenance and monitoring plan, guaranteed by funds dedicated by the project proponent, to make sure the cap remains intact and that changes in the groundwater are detected and addressed before it could present a threat to public health or the environment.

Q. What are the options to properly close unlined landfills?

A. In general, there are two standard alternatives that are evaluated in selecting a proposed landfill closure design:

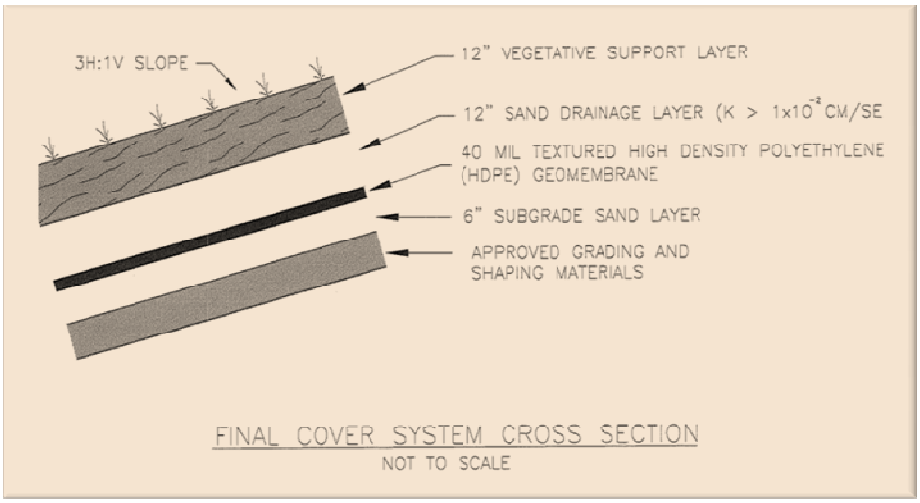
- The first and most common approach is the traditional capping and closure of a landfill in compliance with MassDEP solid waste regulations. This alternative involves adding soil to grade

and shape the top of the landfill for proper cap design and stormwater runoff, capping with an impermeable membrane (a fabric that is manufactured to keep its integrity in the environment), and covering the top layer with clean soil along with a vegetative cover (usually grass), and maintenance of the landfill cover over time. The material used for grading and shaping under the impermeable membrane often includes contaminated soils for this sub-grade layer.

- The second alternative is to remove the waste that has been deposited in the landfill. This option is usually limited to very small landfills that cover less than two acres and have waste only at shallow depths. Except for these very small landfills, costs for this option usually far exceed the costs of a traditional cap and closure. Excavated waste must be disposed of at a landfill that holds all required approvals from the state. Disposal costs are determined by the receiving facility's tipping fees, which in Massachusetts are approximately $70/ton. In addition, costs for this option have to cover health and safety protection for workers during the excavation, as well as the cost of restoring the site once the waste has been removed.

Q. What determines the height of the landfill cap?

A. There are three primary factors that determine the height of a landfill cap. First, the landfill size and shape needs to be determined to identify the area to be capped. Second, the site needs to be graded and shaped to ensure that the cap will be stable, will appropriately shed and control stormwater, and will maintain vegetation support on the top layer. Third is a consideration of whether the project needs to bring in revenue from soil and other materials such as construction and demolition debris residuals that are used for grading and shaping. The revenue can offset project construction costs as well as fund some of the required post-closure 30-year monitoring and maintenance.



Q. Does a comprehensive site assessment (CSA) have to be conducted before landfill closure activities begin?

A. No, a Comprehensive Site Assessment (CSA) intended to delineate the extent of a waste disposal area and to characterize the impacts of the waste on the surrounding environment may be done on a parallel track with landfill closure activities. However, this assessment must be completed before the final cap is installed.

Q. How much does it cost to close a landfill?

A. The final cost of a landfill closure is dependent on its size, location, waste characteristics, and surrounding environmental resource areas. Landfill closure projects involve many components such as site assessment, preparation and infrastructure, engineering and design services, financial assurance mechanisms, capping materials, wetlands restoration, construction equipment and labor, groundwater and gas monitoring equipment, and long- term monitoring and maintenance. Generally, the cost of capping a landfill is approximately $200,000 per acre. The total cost of the components make landfill closures expensive and the use of regulated soils for grading and shaping materials is typically necessary to provide a source of revenue to offset the closure costs.

MassDEP has negotiated the closure of many unlined landfills since the 1970s and has extensive experience in reviewing proposals and costs. For the proposed closure of the Old Fall River Road landfill currently under review, MassDEP has retained the services of a consultant to provide an independent cost estimate of capping this landfill and to determine the appropriate amount of soils needed.

Q. How does MassDEP ensure contaminated soils reused at landfills are within acceptable levels?

A. MassDEP regulates the management, oversight, and reuse of contaminated soils. MassDEP has adopted (in regulations and policies) limits on the types and levels of contaminants in soil that are acceptable for grading and shaping material based on assessments of potential risks for workers at the site, near-by neighbors, and the environment. MassDEP may establish additional restrictions in its approval of the project, depending on where the site is located and the surrounding land use. A standardized process is in place that requires the use of an environmental professional (with technical and regulatory expertise) to test and approve soils to ensure that only soils that meet the requirements are used. A second compliance review is conducted by the landfill operator that receives the soil by another environmental professional to verify the previous determinations along with the necessary documentation. The receiving landfill's on-site facility manager must maintain records that describe the soil that is brought in, including all bills of lading, and submit periodic reports to MassDEP.

Q. Can a landfill be closed without using contaminated soils?

A. In almost all cases involving old inactive landfills, soil must be brought in to construct an appropriate cap for engineering purposes, grading and shaping, such as filling in depressions and achieving proper slopes. If clean fill was used, it would add a very large expense to the project's costs for which funding is generally not available. Approved contaminated soil is often reused for grading and shaping because it generates a source of revenue to offset the closure costs and creates a valuable environmental reuse for this material.

Q. What is known about the contents of the Old Fall River Road landfill?

A. The available evidence indicates that the potential for the landfill to contain significant quantities of toxic waste is very small. The waste at the landfill is primarily construction and demolition waste. Information on what has been buried in the landfill comes from multiple sources including inspection reports from the U.S. Environmental Protection Agency and observations made by MassDEP staff during many landfill inspections. In addition, the project proponent, Boston Environmental Corporation (BEC) and its consultants recently performed an assessment by sampling groundwater. MassDEP has concluded that based on the available sampling data for this site and on field observations the site's

conditions are consistent with the disposal of construction and demolition waste as well as other non-hazardous wastes such as tires.

Q. What is the extent of groundwater contamination from the Old Fall River Road landfill to the watershed?

A. Concern has been expressed by community members and watershed advocacy groups that water supplies, rivers, and streams in Dartmouth, and neighboring towns have been impacted and that the impact will increase if the proposed capping project is approved. The sampling data associated with this landfill documents that there has been some degradation of groundwater, sediments, and wetlands in the immediate area of the landfill. MassDEP has reviewed the data and believes that:

- Contamination from the landfill at this time is localized in the immediate vicinity of the landfill's primary waste disposal area; and
- The type and concentrations of groundwater contaminants do not present an immediate public health or ecologic risk.
- The surrounding wetlands provide a natural mechanism that prevents the further migration of contaminants.
- Allowing the landfill to remain uncapped will allow the continued unrestricted percolation of stormwater into the landfill resulting in the release of millions of gallons a year of stormwater and leachate into the nearby surface water and groundwater.

Q. Will the contaminated soil and sediments from this landfill impact nearby water bodies and the watershed?

A. The contaminated soil proposed for grading and shaping will not impact the area nearby or the watershed. To prevent adverse impact during construction of the cap, controls will be implemented to control storm water runoff from the landfill into the surface waters and wetlands. The soil will be covered by an impermeable system that will prevent contact between the soil and stormwater, thus eliminating the pathway for the contaminants to enter the ground or surface water. The soil will settle and compress the ground, but its weight will not trigger the release of contaminants in the landfill or soil. Many reports have demonstrated that contamination from soils used for shaping and grading material do not leach into groundwater in amounts that adversely impact surrounding groundwater or surface waters.

Q. Will bringing contaminated soils to the site increase the risk to the public?

A. No. MassDEP used very conservative scenarios to develop the standards that determine the acceptable levels of contaminants in soils that are approved for reuse at landfills. Furthermore, the contaminated soil would be covered by an impermeable cap and cover system that prevents direct exposure and prevents rainwater from percolating through the soil, and the landfill, into groundwater. Without a cap the landfill currently generates approximately 18 million gallons a year of contaminated water (leachate). The landfill in its current condition presents a much greater risk long term than the short term acceptance of regulated soil to assist in capping.

Q. How has MassDEP determined that regulated soils are safe for children playing in or near it?

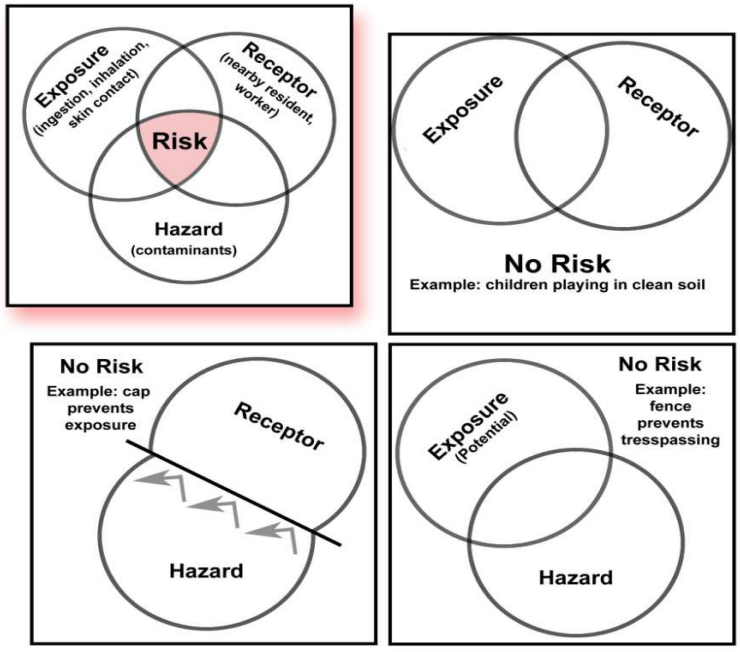
A. Children will not be exposed to the soils used for grading and shaping because all regulated soils used for a landfill closure will be covered by an impermeable layer and a layer of clean soil before any post closure use, recreational fields for example, would be allowed where children have access to the closed landfill.

Q. Will the landfill pose a higher risk in the future?

A. The landfill will not pose a higher risk in the future if the landfill is properly capped, closed, maintained and monitored. The most important purpose for the closure of the landfill is to eliminate present and future risk of direct exposure to the waste materials, indirect exposure through contamination of the groundwater by leachate, landfill gas emissions and the release of contaminants into the environment through illegal disposal or disruption of the landfillsite. Without proper closure, the uncertainty of these risks remains.

Q. How do I know if I am at risk or exposed to landfill contaminants?

A. The Old Fall River Road Landfill presents a risk to the public because it is not lined, capped or properly closed. Each year, large amounts of rainwater percolate into and through the landfill and can contaminate groundwater and private drinking water wells. The risk presented at this site in its current condition is associated with releases of leachate that continues to degrade groundwater quality. There are private drinking water wells in the nearby neighborhood, and the future potential for exposure to landfill contaminants must be addressed. A review of recent environmental sampling revealed low levels of contamination immediately surrounding the landfill. As part of the landfill closure process, a comprehensive assessment will include additional monitoring of groundwater conditions.



Additionally, when determining risk , three basic factors must all be present:

- A **source** of contamination (a hazard)
- A **receptor (human or environmental)**
- **An exposure pathway for the contamination to reach the recipient.**

These three factors are the basis for any health, risk or ecological assessment. Capping the landfill will eliminate the potential for people to come into direct contact with the waste and will stop contaminated runoff into surrounding wetlands. The landfill cap also reduces to a minimal level the pathway for groundwater contamination that the presently upcapped landfill now provides.

Q. Will the added truck traffic pose a danger to the community?

A. Landfill closure operations can not pose a danger to public health, safety or the environment. MassDEP requires that Best Management Practices and Safeguards be implemented during the capping and closing of a landfill to prevent nuisance conditions and ensure safety. For example, trucks can only use a set traffic route during hours of operation and visible signs may be placed to identify speed limits, crosswalks and bus stops. The road and entrance to the property may be improved for increased visibility and trucks must be covered, wheels washed, and vehicle emission controls must be put in place along with a requirement for no “jake braking” to minimize traffic noise.